

CLAIMS

What is claimed is:

- 5 1. A network interface device connected to building wiring, the building wiring comprising a point of entry and a plurality of branches connected to terminal devices, for creating a signal distribution system comprising
- 10 a first port connected to the point of entry side of a branch of the building wiring;
- a second port connected to the terminal device side of a branch of the building wiring; and
- 15 a signal reflecting circuit connected between the first and second port.
2. The network interface device of claim 1, wherein the
- 20 signal reflecting circuit comprises a parallel resonant circuit.
3. The network interface device of claim 1, wherein the
- 25 signal reflecting circuit comprises a series resonant circuit.
4. The network interface device of claim 1, wherein the
- 30 signal reflecting circuit comprises a splitter/combiner with a first tap port, a second tap port and a common port, wherein the power at the first and

second tap ports is coupled bi-directionally to the common port;

the common port connected to a branch of building wiring;

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a first filter for separating bands of frequencies connected to the first tap port;

means for reflecting signal energy connected to the first filter; and

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a second filter for separating band of frequencies connected between the second tap port and the point of entry.

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5. A signal distribution network for transmitting modulated signals using building wiring containing a plurality of branches comprising

a network interface device that couples network signals originating in the building wiring back into the building wiring;

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at least one signal splitter; and

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a plurality of terminal devices.

6. The signal distribution network of claim 5, wherein the signal modulation is orthogonal frequency division multiplexing.

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7. The signal distribution network of claim 5, wherein the building wiring is coaxial cable.

8. The signal distribution network of claim 5, wherein the network interface device is located at the point of entry of the building wiring.

9. The signal distribution network of claim 5, wherein the network interface device is frequency dependent and couples signals by reflecting a predetermined frequency band of signals.

10. The signal distribution network of claim 5, wherein the network interface device is direction dependent and couples signals by power summing signals from at least two branches.

11. A signal distribution network for transmitting modulated signals using building wiring comprising at least one signal splitter; and

at least one frequency dependent signal coupling element connected to a signal splitter; and

a plurality of terminal devices connected to signal splitters.

12. The signal distribution network of claim 11, wherein the frequency dependent signal coupling element reflects a predetermined frequency band of signals.

13. The signal distribution network of claim 11, wherein the signal distribution network is orthogonal frequency division multiplexing.

5 14. The signal distribution network of claim 12, wherein the building wiring is coaxial cable.

15. The signal distribution network of claim 12, wherein the frequency dependent signal coupling element is located
10 at the point of entry of the building wiring.

16. The signal distribution network of claim 12, wherein the signal modulation is orthogonal frequency division multiplexing.

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17. The signal distribution network of claim 12, wherein the signal modulation is code division multiplex.

18. The signal distribution network of claim 16, further
20 comprising a method of sharing the communication medium between terminal devices using time division duplex protocol.

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